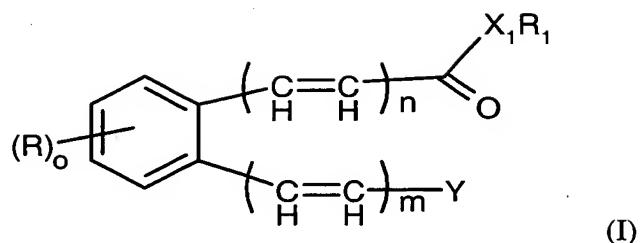


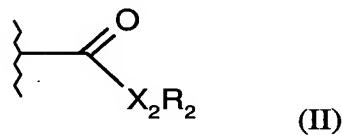
CLAIMS:

1. A compound of formula (I)

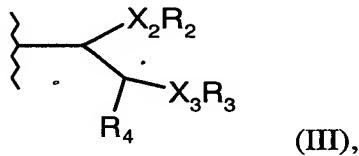


in which:

Y is a group of formula (II)



or of formula (III)



15 R is

H, C₁-C₆-alkyl, C₂-C₆-alkenyl, C₂-C₆-alkynyl or C₅-C₁₄-aryl, halogen, -CN, -OH, -O-C₁-C₆-alkyl, -O-C₂-C₆-alkenyl, -O-C₅-C₁₄-aryl, -O-C₂-C₆-alkynyl, -NH₂, -NH-C₂-C₆-alkyl, -NH-C₂-C₆-alkenyl, -NH-C₂-C₆-alkynyl, -NH-C₅-C₁₄-aryl, -N(-C₁-C₆-alkyl)₂, -N(-C₂-C₆-alkenyl)₂, -N(-C₂-C₆-alkynyl)₂, -N(C₅-C₁₄-aryl)₂, -NH[-C(=O)-(C₁-C₆-alkyl)], -NH[-C(=O)-(C₅-C₁₄-aryl)], -NH-O-R₁, -SH, -S-C₁-C₆-alkyl, -S-C₂-C₆-alkenyl, -S-C₁-C₆-alkynyl or -O-C₅-C₁₄-aryl, wherein the abovementioned substituents are unsubstituted or substituted, one or more times, by a substituent independently selected from C₁-C₆-alkyl, C₂-C₆-alkenyl, C₂-C₆-alkynyl, C₅-C₁₄-aryl, where alkyl, alkenyl, alkynyl and aryl may be independently unsubstituted or substituted, once or twice, by a substituent independently selected from -OH, =O, -O-C₁-C₆-alkyl, -O-C₂-C₆-alkenyl, -O-C₅-C₁₄-aryl, -C₅-C₁₄-aryl, -NH-C₁-C₆-alkyl, -NH-C₂-C₆-alkenyl,

20

25

-NH₂, and halogen, wherein alkyl, alkenyl, alkynyl and aryl can be further substituted by a -CN, amide or oxime,

R₁, R₂, R₃ and R₄ are, independently of each other,

5 H, C₁-C₆-alkyl, C₂-C₆-alkenyl, C₂-C₆-alkynyl or C₅-C₁₄-aryl,
in which alkyl, alkenyl, alkynyl and aryl are unsubstituted or substituted, once or twice, by a
substituent independently selected from -OH, -O-C₁-C₆-alkyl, -O-C₂-C₆-alkenyl, -O-C₅-C₁₄-
aryl, -C₅-C₁₄-aryl, -NH-C₁-C₆-alkyl, -NH-C₂-C₆-alkenyl, -NH₂ and halogen, in which alkyl,
alkenyl, alkynyl and aryl are independently unsubstituted or substituted, once or twice, by a
10 substituent independently selected from -OH, =O, -O-C₁-C₆-alkyl, -O-C₂-C₆-alkenyl, -O-C₅-
C₁₄-aryl, -C₅-C₁₄-aryl, -NH-C₁-C₆-alkyl, -NH-C₂-C₆-alkenyl, -NH₂ and halogen, in which
said alkyl, alkenyl, alkynyl and aryl can be further independently substituted by a -CN, amide
or oxime,

15 X₁, X₂ and X₃ are, independently of each other, selected from
-CH₂-, -CHR-, -NH-, -N(C₁-C₆-alkyl)-, -N(C₂-C₆-alkenyl)-, -N(C₂-C₆-alkynyl)-,
-N[-C(=O)-(C₁-C₆-alkyl)]-, -N[-C(=O)-(C₅-C₁₄-aryl)]-, -N(C₅-C₁₄-aryl)-, -N(O-R)-,
-O- and -S-,

20 n and m are, independently of each other,
2, 3, 4 or 5, and

25 o is
0, 1, 2 or 3,
excluding, however, compounds of formula (I) in which
o is 0,
n is 2,
m is 2 or 3,
30 X₂ and X₃ are O, and
R₂ and R₃ are C₂H₅,
and all double bonds possess the trans-configuration,

and/or stereoisomeric forms of compounds of formula (I) and/or a mixture of these forms in any ratio, and/or physiologically tolerated salts of compounds of formula (I).

2. A compound of formula (I) as claimed in claim 1, wherein at least one polyene group 5 contains at least one *cis* double bond.

3. A compound of formula (I) as claimed in claim 1, wherein

R is H,

R₁ is H or C₁-C₆-alkyl,

10 R₂ is H or C₁-C₆-alkyl,

R₃ is H or C₁-C₆-alkyl,

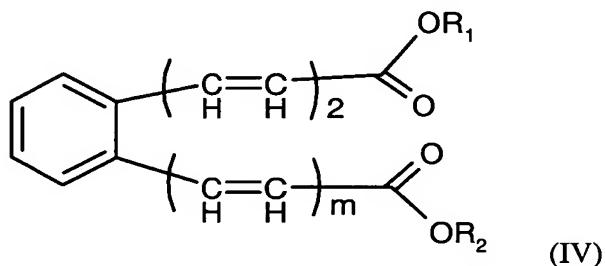
R₄ is C₁-C₆-alkyl, and

X₁ and X₂ are -O-,

and the physiologically tolerated salts thereof.

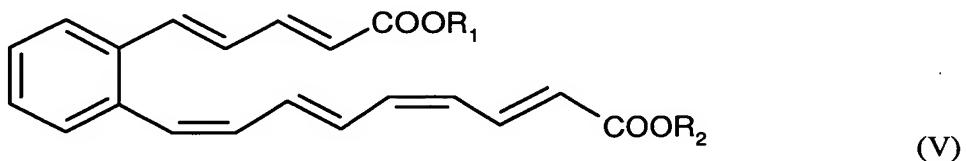
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4. A compound of formula (I) as claimed in claim 1, which is a compound of formula (IV)



20 wherein m is 3 or 4, and R₁ and R₂ are as defined in claim 1 and the physiologically tolerated salts thereof.

5. A compound of formula (I) as claimed in claim 1, which is a compound of formula (V)

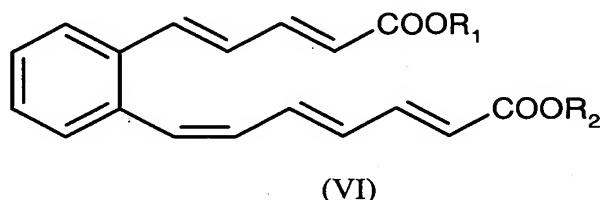


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wherein R1 and R2 are as defined in claim 1.

6. A compound of formula (V) as claimed in claim 5, wherein each of R₁ and R₂ is H.

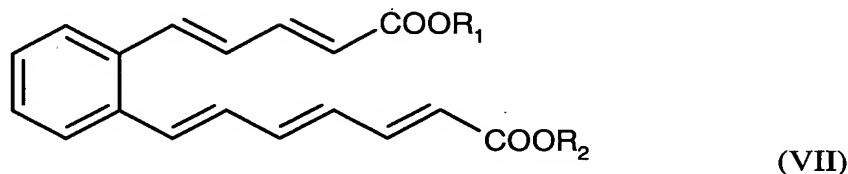
5 7. A compound of formula (I) as claimed in claim 1, which is a compound of formula (VI)



wherein R1 and R2 are as defined in claim 1.

10 8. A compound of formula (VI) as claimed in claim 7, wherein R₁ and R₂ are each H.

9. A compound of formula (I) as claimed in claim 1, which is a compound of formula (VII)

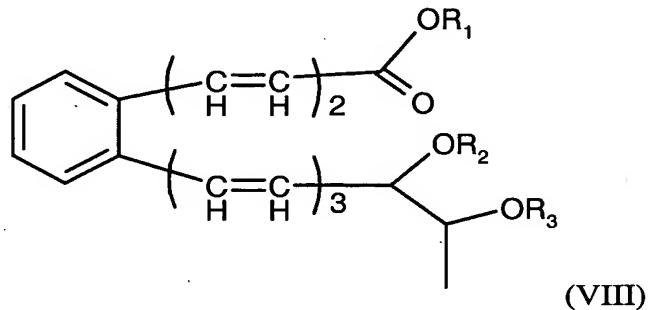


15 wherein R1 and R2 are as defined in claim 1.

10. A compound of formula (VII) as claimed in claim 9, wherein R₁ and R₂ are each H.

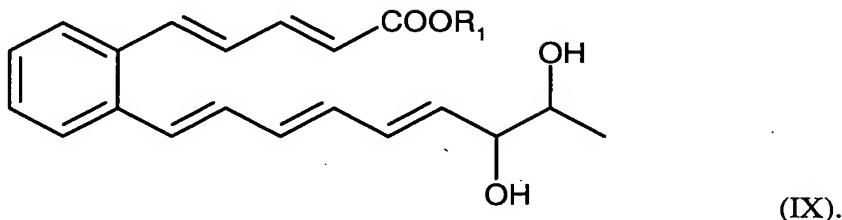
11. A compound of formula (I) as claimed in claim 1, which is a compound of formula (VIII)

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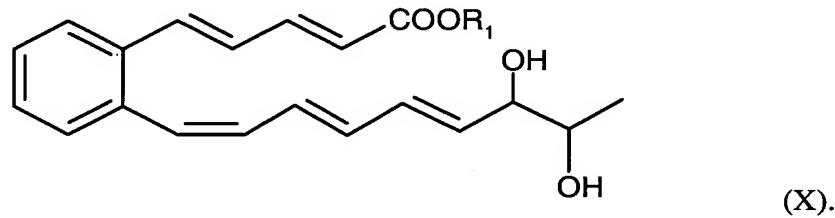
wherein R₁ and R₂ are as defined in claim 1.

12. A compound of formula (VIII) as claimed in claim 11, which is a compound of formula (IX)



13. A compound of formula (IX) as claimed in claim 12, wherein R₁ is H.

14. A compound of the formula (VIII) as claimed in claim 11, which is a compound of formula (X)



15. A compound of formula (X) as claimed in claim 14, wherein R₁ is H.

16. A process for preparing a compound of formula (I) as claimed in claim 1, which comprises

1. culturing the microorganism *Actinomycetales* sp. DSM 14865, or one of its variants and/or mutants, in an aqueous nutrient medium until one or more of the compounds serpentemycin A, B, C and D accrues in the culture broth,
2. isolating and purifying said serpentemycin A, B, C and/or D,
3. where appropriate, using a suitable reagent to convert said serpentemycin A, B, C or D into another compound of formula (I),
4. and, where appropriate, converting said compound of formula (I) into a pharmacologically tolerated salt.

25

17. The process as claimed in claim 16, wherein the suitable reagent is an alkylating agent.

18. A process as claimed in claim 16, which comprises fermenting the microorganism *Actinomycetales* sp. DSM 14865, or one of its variants and/or mutants, in a culture medium which contains a carbon and nitrogen source and also the customary inorganic salts and trace elements, isolating serpentemycins A, B, C and/or D and, where appropriate, converting said serpentemycins A, B, C and/or D into a pharmacologically tolerated salt.

5

19. A process as claimed in claim 16, wherein the fermentation is carried out under aerobic conditions at a temperature of between 20 and 35°C and at a pH between 4 and 10.

10

20. A method for the treatment and/or prophylaxis of an infectious bacterial disease comprising administering to a patient in need thereof an antibacterially effective amount of a compound of claim 1.

15

21. A pharmaceutical composition for the treatment and/or prophylaxis of infectious bacterial diseases comprising at least one compound as claimed in claim 1 and one or more physiologically suitable auxiliary substances.

20

22. A process for producing a pharmaceutical composition as claimed in claim 21, which comprises combining at least one compound as claimed in claim 1, with one or more physiologically suitable auxiliary substances, into a suitable form for administration.

23. The microorganism *Actinomycetales* sp., DSM 14865.